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Practical views of the treatment
of fractures &c





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PRACTICAL VIEWS OF THE TREATMENT OF FRACTURES AND DISLOCATIONS OF THE ELBOW-JOINT, AND ON THE GENERAL IMPROPRIETY OF PASSIVE MOTION.

AN ABSTRACT OF REMARKS MADE AT A CLINICAL LECTURE DELIVERED AT THE MASSACHUSETTS MEDICAL COLLEGE, MARCH 2, 1868, BY HENRY J. BIGELOW, M.D., PROFESSOR OF SURGERY.

Reported by HENRY H. A. BEACH.

THERE is no class of injuries so frequently productive of discontent, and perhaps so often the cause of litigation, as the traumatic lesions of the elbow-joint. The fractures of the elbow are especially common in children; and the surgeon is often called upon, some six or eight weeks after the accident, to say whether the elbow has been properly set. Although he should uniformly refrain from expressing an opinion which cannot be given without a full knowledge of the circumstances under which the patient was treated, and although it is at that interval of time occasionally impossible to say exactly what the original injury was, yet he is often led to the painful conviction that the result might have been better if certain simple rules of treatment had been rigidly adhered to. These rules are often lost sight of; they do not receive that prominence in books which the importance of the subject demands. It is also a fact, that a fracture of the elbow-joint, especially in a young person, may pass for a sprain, because it fails to exhibit any marked signs upon a casual inspection; because the pain may be slight and the swelling such as to mask, in some measure, the character of the injury. The medical attendant, after examining the arm, has, perhaps, enjoined great care, with a compress bandaged upon the parts, with cooling applications or liniments; and visiting it daily, has been surprised, at the end of four or five weeks, when the swelling has subsided, to find an unusual stiffness of the joint: in fact, an impossibility of flexion or extension, and, what is of more importance, a hard prominence in the bend of the elbow, suggestive of serious displacement. Such is the history of frequently recurring cases of injury to the elbow-joint; resulting, not from a want of ostensible care or solicitude on the part of the surgeon, but of an omis-

sion of one simple expedient in treatment, presently to be mentioned, and for the want of which, deformity is imminent; although I incline to the belief that in a majority even of these cases, a tolerably good joint is established in a young person after a lapse of years. I am speaking of the simple and not the compound fractures or dislocations of this joint, which are very serious injuries. Cases may also happen where the elbow is so excessively swollen, before the surgeon is called, that it may be proper to wait for the swelling to subside before applying the necessary apparatus; but even here the inflammation subsides more readily if the elbow can be properly set, and the very large majority of cases are not of this character. The rule I would enjoin upon you is the following:—

Ascertain if the olecranon is broken, which can be done with comparative ease, as it lies near the surface; this injury requires a special treatment. In all the other injuries of the elbow-joint, whether you are able to make an exact diagnosis or are wholly unable to do so on account of the swelling, *treat them as though the forearm had been dislocated backward, and secure the arm at about right angles to an inside angular splint.* The propriety of this measure will not be doubted with regard to the more common dislocations of the arm. The very rare instances of the radius dislocated forward, or the all but impossible forward dislocation of the ulna alone, would doubtless declare themselves, and the bones would be replaced during the manipulation. Practically speaking, they are so rare that they need not be taken into account. But among the fractures, the transverse fracture of the lower end of the humerus; the T fracture into the joint; the fracture of the inner or outer condyle separately; the comparatively rare fracture of the coronoid process of the ulna;

or of the radius or ulna near the joint, are all properly treated by the expedient above described : while the common injuries of the lower end of the humerus, including the fracture of the internal condyle into the joint, in most cases peremptorily demand it. In these cases, it is sometimes difficult or impossible to make an accurate diagnosis ; but the above treatment covers the whole of them and does harm to none, while it is the omission of it, as I believe, that directly leads to deformity in a large proportion of them. In a case of this sort, my advice is as follows :—

Always etherize, and avoid any painful examination whatever until the patient is fully etherized. In procuring the ether, I always provide, also, an internal angular splint, knowing that the chances are ten to one that it will be required. The patient being now etherized, the character of the injury is determined as far as may be without unnecessary harm from manipulation of the parts; and the elbow being placed at right angles, the wrist is drawn forward, while the humerus is pushed backward at the elbow, precisely as if a backward dislocation was being reduced. In this position it is forcibly maintained while the fragments are adjusted as far as may be, and an internal right angular splint, padded by a folded towel, is applied by an assistant. To this the arm and forearm are now secured, the friction of the bandage of the forearm being relied on to prevent any backward displacement in the elbow. I need not say that a bandage is never to be applied before putting on the splint. An outside straight splint may also be secured to the forearm, if thought necessary. A few inches above and below the elbow may be left uncovered for cooling applications and especially leeches, if the swelling or superficial congestion make it advisable.

If the olecranon alone be fractured, a more or less straight position is usually advised. Do not suppose that because the olecranon is fractured, it is drawn up the arm by the triceps muscle, as indicated in the plates. On the contrary, it is generally retained pretty nearly in its place by the lateral ligaments. A member of the class once asked me, "What if the olecranon and internal condyle be both fractured ?" In reply, I should say, wait until it occurs. A semi-flexed position might then be a compromise between a widened crack of the ulna and the far more serious deformity resulting from a displacement of the fragments of the humerus for the want of a right-angled flexion. But in inventing

an injury of such possible occurrence, do not lose sight, in the very frequently recurring fracture of the condyles of the humerus, of the absolute importance of drawing the arm forward at right angles, and confining it in this position by an internal angular splint. It is the tendency to backward displacement of the forearm that commonly leads to deformity in these cases.

Now let us suppose that a fracture of the elbow-joint has been overlooked, and the arm placed in a sling, as above described ; or that a simple bandage has been applied to it, perhaps with leeches and cooling applications, and that everything but the proper thing has been done, or, indeed, that the injury has been so severe as necessarily to entail a very limited motion of the joint at the expiration of perhaps four to six weeks. Consult the books upon the subject, and you will there find that it is necessary, after this interval, to commence what is called *passive motion*, which is generally of a pretty active character. I hold this teaching to be radically wrong ; and that such passive motion, as a rule, besides occasioning the patient excessive pain during the operation, or, if done with ether, a good deal of discomfort afterwards, is productive of more harm than good. It begets active inflammation, and is a serious injury to a part which is under repair, and which nature in her own good time will restore better without than with it. More than this, I believe that the time lost by the necessity of rest during these inflammatory attacks more than counterbalances any time supposed to be gained by pumping the joint, lacerating the bands of recent lymph, compelling the stiffened ligaments to bend, and otherwise doing violence to the still inflamed and tender tissues. I speak now of the pain and inflammation liable to be awakened ; but there are other injuries which may occasionally happen in passive motion of the elbow-joint. Among them, the most frequent is the separation of the olecranon, especially when that was a part of the original injury. On this account, I have sometimes been careful, when passive motion seemed to be called for, rather to extend than to flex the limb, or at any rate to flex with great caution. The fragments of the humerus, when they have not been properly replaced, resulting in a stiffness which has been considered especially to demand a passive flexion, are unfortunately too solidly united in their new position to allow of their displacement or of material benefit to the arm by doing this violence to the joint. If, when the splint has been removed at the

proper interval for repair (from four to six weeks), the arm can be flexed or extended through even a very small arc, not with that deceptive springiness and elasticity due to the elasticity of the ligaments, but in a way to satisfy the surgeon that the cartilages are sliding, one upon the other, however little, my rule is to leave the rest to nature, with entire confidence in the result; allowing the patient to take off his splint daily, and as he pleases; to flex and extend it as the pain and tenderness may allow him, encouraging him in his attempts to reach his forehead with his hand. I have also often advised a patient to bore holes in a soft board with a small gimlet, to increase the power of rotation. But if the cartilages do not slide through even a small arc, and motion is restricted, elastic and springy, owing to bony deformity, so much the worse for the patient, and so much the longer and less perfect the recovery. I do not believe you can accelerate it by passive motion, as the term is usually understood; you give the patient a good deal of suffering and the joint a good deal of inflammation. If these views of passive motion are correct, the teaching of the books should be received with considerable qualification.

The exception noted above, in which passive motion is undoubtedly advantageous, is when the bones are in place, the articular surfaces in shape, and the arm stiff only from being too long kept in splints; but this is only likely to occur after an interval of months, just as the arms of fakirs are said to become ankylosed, by being kept for years in one position. I have had a lady brought to me, who, having

lost sight of her medical attendant, and feeling her elbow a little sensitive, after a fracture, had kept a splint upon the joint for more than three months. The elbow was of normal shape, with little or no tenderness, but was stiff, and there was virtually a false ankylosis. When the muscles were relaxed by ether, a little motion was discoverable, as is usual in cases of false ankylosis; and, with the application of moderate force, the bones of the forearm were made to sweep around the articular surface of the humerus, as in a healthy joint. This sliding of a healthy cartilage, contrasts strongly with the unyielding springiness and elasticity before alluded to, where bony deformity exists, and characterizes the case which passive motion benefits; where all motion has been accidentally prevented for months, and where there is no deformity of the articular surfaces. Exactly how far these remarks on passive motion apply to the knee and other joints and injuries, I will not attempt here to define, but can only say that I have seen more harm than good arise from forcible flexion of the knee after rheumatism and after fracture of the shaft of the femur. In simple fractures of the elbow, except of the olecranon, these remarks may be summed up as follows:—always etherize the patient, go through the motions of reducing a backward dislocation of the forearm, and apply an internal angular splint. When there is bony deformity or projecting callus, passive motion does harm; and when the bones are in place and under supervision, it is unnecessary.



